WATERSHED MANAGEMENT AREA 4
LOWER PASSAIC RIVER DRAINAGE

This region includes the lower Passaic River (from the Pompton River confluence downstream to Newark Bay) and its tributaries, including the Saddle River. The Area covers portions of Passaic, Essex, Hudson and Bergen Counties and includes the following watersheds:

Lower Passaic River Saddle River

Summary of ambient physical/chemical monitoring stations and classifications:

Station	Classification
Passaic River at Little Falls	FW-2 Nontrout
Passaic River at Elmwood Park	FW-2 Nontrout
Saddle River at Lodi	FW-2 Nontrout

Note: Chemical monitoring at Passaic River at Singac (FW-2 Nontrout) and Saddle River at Fair Lawn (FW-2 Nontrout) has been discontinued.

OVERALL MANAGEMENT AREA ASSESSMENT

- Swimmable Support Status:

WATERWAY	LOCATION	STATUS
Passaic River	at Little Falls	No Support
Passaic River	at Elmwood Park	No Support
Saddle River	at Lodi	No Support

Summary of Aquatic Life Support Status (Number of stations within each assessment category). Note: See the Biological Assessment Table located at the end of this section for details regarding macroinvertebrate assessments within the watershed.

No Impairment: 6 Mod. Impairment: 12 Severe Impairment: 3

MAPS here

LOWER PASSAIC RIVER

WATERSHED DESCRIPTION

The Lower Passaic River is considered in this report to be that section from the Pompton River confluence downstream to Newark Bay. This 33 mile section includes parts of Bergen, Hudson, Passaic and Essex Counties. Major tributaries include the Saddle River, Preakness Brook, Second River, and the Third River. The Lower Passaic River contains a number of falls, culminating with the Great Falls at Paterson. There is one small dam on the river near Newark named Dundee Dam. This is a densely populated area, including the major cities of Newark, Paterson, Clifton, and East Orange.

Land in this watershed is extensively developed and contains many older cities and industrial centers. There is little open space except in the Upper Saddle River Watershed. Of the approximately 120 NJPDES permitted discharges located in the watershed, about 100 are industrial/commercial and the remaining are municipal.

The Lower Passaic River, including the Saddle River, flows through a densely populated, urbanized and industrialized region. As a result, water quality conditions in the region's surface waters are reflective of numerous point sources, significant nonpoint source contributions, and high sediment oxygen demands.

The waters of the Lower Passaic River and its tributaries are classified FW-2 Trout Production, FW-2 Trout Maintenance (in the Saddle River watershed), FW-2 Nontrout, SE-2, and SE-3.

WATER QUALITY ASSESSMENT

Physical/Chemical Water Quality

Location: Passaic River at Little Falls and Elmwood Park

Dissolved Oxygen: Acceptable at both locations.

Temperature: No violations of the upper criterion for non-trout waters.

Nutrients: Phosphorus highly elevated; 93% and 82% of phosphorus records for the period of assessment were in violation of the criterion at Little Falls and Elmwood Park, respectively. Median values were recorded to be 0.46 mg/l at Little Falls, and 0.21 mg/l at Elmwood Park. Nitrate+Nitrite levels were also elevated; median values were 2.9 mg/l at Little Falls, and 2.5 mg/l at Elmwood Park.

Passaic River at Little Falls and Elmwood Park continued:

Bacteria: Elevated at Little Falls, with a geometric mean of 332 MPN/100ml for fecal coliform. Elmwood Park exhibited severely elevated levels, with a geometric mean of fecal coliform being 5165 MPN/100ml.

pH: Both stations had occasional violations of the upper pH limit of 8.5 SU. Little Falls showed exceedances in 11% of samples; Elmwood had exceedances in 3% of recorded values.

Sodium: Elevated sodium is a problem at both locations. Little Falls showed exceedances in 18% of recorded values with a median value of 38.5 mg/l. Elmwood Park had exceedances in 28% of recorded values. There the median was 45 mg/l.

Heavy Metals: Both locations have lead violations of the chronic criterion. At Little Falls, one of three values exceeded the criterion, however, the other two closely approached the chronic limit calculated for this location. At Elmwood Park, all three either equaled or exceeded the criterion. In addition, Elmwood Park showed high copper levels, although no violations were recorded, and mercury may be threatening the station at Little Falls.

Summary: Both locations are characterized by highly elevated phosphorus, poor sanitary quality, elevated sodium and lead. Copper and mercury could also be threatening Elmwood Park and Little Falls, respectively.

Location: Saddle River at Lodi

Dissolved Oxygen: Acceptable.

Temperature: No violations of the upper criterion for non-trout waters.

Nutrients: Highly elevated nutrient levels. Total phosphorus showed a median of 0.36 mg/l, with 78% of values exceeding the water quality criterion. Median Nitrate+Nitrite level was 3.96 mg/l.

Bacteria: Severely elevated, with a geometric mean of fecal coliform bacteria of 969.6 MPN/100ml.

Sodium: Extremely elevated sodium is a problem at this location. Here, exceedances of the criterion were seen in 45% of recorded values, with a median value of 49 mg/l.

Unionized Ammonia: Although meeting water quality criteria, this parameter is elevated, producing a median value of 12 ug/l. Levels over 40 ug/l have been observed during the period of assessment.

Summary: Poor water quality. Nutrients, bacteria and sodium all highly elevated. Location is threatened with possible ammonia toxicity.

Biological Monitoring

Macroinvertebrate monitoring reveals varying degrees of impairment within the management area. Only one monitoring location is located on the Passaic River itself in the town of Little Falls where the community was assessed as moderately impaired. Of the numerous tributaries to the Lower Passaic, the results were as follows: Preakness Brook, moderately impaired; Peckman River, moderately impaired; Molly Ann Brook, severely impaired; Goffle Brook, moderately impaired; Diamond Brook, moderately impaired; Third River, moderately impaired.

The biological health of the Saddle River based upon the macroinvertebrate community varies from healthy in the upper half, moderately impaired in the lower portions, then further degrading to severely impaired in the lowest end. Hohokus Brook is assessed as moderately impaired upstream, improving to non-impaired near its confluence with Ramsey Brook. Further downstream, Hohokus Brook degrades again to moderately impaired before it joins with the Saddle River. Ramsey Brook is severely impaired as it flows into New Jersey from New York but improves to healthy conditions as it flows into the Hohokus. Valentine Brook, a tributary to the Hohokus, was assessed as moderately impaired.

POINT SOURCE ASSESSMENT

The Lower Passaic River from the Pompton River to the Dundee Dam is severely affected by point sources which overload the assimilative capacity of the river. The Passaic River is highly enriched and suffers from excessive nutrients and oxygen demand. Below Dundee Dam, the Passaic River is tidal and impacted by point and nonpoint sources, and by inputs of polluted waters from further downstream during high-tidal periods. The large number of point sources discharging to the river reflects the complexity of water quality management for the Passaic River.

No dischargers to the Lower Passaic River are reported to be under enforcement actions by the department at the time of this writing. One wastewater discharger is scheduled to be taken off-line (see table below).

The following wastewater treatment plant will be eliminated:

FACILITY	LOCATION	RECEIVING STREAM	COMMENTS
Essex Co. Dept. of Public Works	Cedar Grove	Peckman River	ACO establishes a schedule to eliminate Essex Co.'s wastewater treatment plant discharge to the Peckman River by constructing and operating a pump station directing flow to the Verona Wastewater Treatment Plant. This connection is expected to be completed by the end of 1997 and is expected to significantly improve water quality in the Peckman River.

The Saddle River is suspected of being primarily impacted by urban/suburban runoff, although point sources do exist in the watershed. As in the lower Passaic, no enforcement actions are underway against discharges to the Saddle River that are affecting surface water quality.

The following facility has been upgraded and has renewed operation:

FACILITY	LOCATION	RECEIVING STREAM	COMMENTS
Borough of Lodi	Lodi	Saddle River	Richmond St. pumping station upgraded to alleviate untreated sewage bypasses to the Saddle River during heavy rain.

A number of hazardous waste sites and contamination problems are found in the Lower Passaic and Saddle River watersheds, including Newark Bay. Those sites that are affecting water quality are chromium disposal sites in Jersey City (to Newark Bay), the Wayne Township Landfill (volatile organics and metals to a small pond), the Ottilio Landfill in Newark (base neutrals, volatile organics and metals) and the Diamond Alkali/Shamrock Corporation site along the Passaic River in Newark. This last site is suspected of contributing dioxin and other chemicals to the waterway, sediments and to aquatic life.

NONPOINT SOURCE ASSESSMENT

The Lower Passaic River suffers water quality degradation and habitat destruction from the consequences of extensive urban/suburban runoff, road and building construction activities, waste storage leaks, riparian vegetation removal, and stream channel modifications. It is suspected by local authorities that a proposed flood control project planned for the Lower Passaic will have additional adverse impacts on the already stressed aquatic life in the river.

In the Passaic River, downstream of Garfield, the degrading impacts of urbanization increase to severe levels. In addition to those urban sources listed in the preceding paragraph, the lower reaches also receive chemical spills and leachate from contaminated soils. Severe degradation from urban runoff, construction, and streambank modification is also evident in many of the tributaries to the Passaic in the lower watershed. Many of these streams are so severely degraded that they are reported to be unable to support any form of aquatic life.

DESIGNATED USE ASSESSMENT

The waters of the Lower Passaic River and Saddle River will not support the primary contact (swimming) designated use. The lower Passaic River partially supports the "aquatic life support" designated use in those portions assessed. Most tributaries to the Passaic in this area also partially support the use. The Saddle River fully supports the "aquatic life support" designated use in its upper half, and partially supports the use along most of its lower region except at its down-stream most end where there is no support.

The tidal Passaic River will not meet water quality criteria for the designated uses assigned to SE-2 and -3 waters. This tidal reach of the Passaic River and Newark Bay are closed to commercial and recreational fishing and shellfishing (crabbing) because the aquatic life is contaminated with chlordane, PCBs and dioxin. As such, the tidal Passaic River will not meet

the fish consumption use. Lack of water quality data in the tidal Passaic River prevents determination of designated use attainment for fish maintenance in SE-3 waters.

BIOLOGICAL ASSESSMENT TABLE: AREA 4

Mgt Area	Watershd	Site ID	Water Body	Location	Municipality	Sample Date	Biological Impairment Rating
4	18	AN0272	Preakness Bk	Paterson - Hamburg Tnpk	Wayne Twp	Jul 12, 1993	moderately impaired
4	18	AN0273	Preakness Bk	French Hill Rd	Wayne Twp	Jul 12, 1993	moderately impaired
4	18	AN273A	Naachtpunkt Bk	Continental Dr (abv outfall)	Wayne Twp	Apr 30, 1991	severely impaired
4	18	AN273B	Naachtpunkt Bk	Continental Dr (blw outfall)	Wayne Twp	Apr 30, 1991	severely impaired
4	18	AN0274	Passaic R	Riverview Rd	Ltl Falls	Jul 7, 1993	moderately impaired
4	18	AN0275	Peckman R	McBride Ave	W Paterson	Jul 7, 1993	moderately impaired
4	18	AN0276	Molly Ann Bk	Totowa Ave	Prospect Pk	Jul 7, 1993	severely impaired
4	18	AN0277	Goffle Bk	Wagaraw Rd	Prospect Pk	Jul 7, 1993	moderately impaired
4	18	AN0278	Diamond Bk	Hemlock St	Fairlawn	Jul 7, 1993	moderately impaired
4	11	AN0279	Saddle R	Old Stone Church Rd	U Saddle R	Jul 17, 1990	non-impaired
4	11	AN0280	Saddle R W Br	Old Stone Church Rd	U Saddle R	Jul 17, 1990	non-impaired
4	11	AN0281	Saddle R	E Allendale Ave	Saddle R	Jul 17, 1990	non-impaired
4	11	AN0282	Saddle R	E Ridgewood Ave	Ridgewood	Jul 17, 1990	non-impaired
4	11	AN0283	Hohokus Bk	Old Mill Rd	Fardale	Jul 16, 1990	moderately impaired
4	11	AN0284	Valentine Bk	Forest Ave	Allendale	Jul 16, 1990	moderately impaired
4	11	AN0285	Hohokus Bk	Park Ave	Allendale	Jul 16, 1990	non-impaired
4	11	AN0286	Ramsey Bk	Grenadier Rd	Mahwah	Jul 16, 1990	severely impaired
4	11	AN0287	Ramsey Bk	Park Ave	Allendale	Jul 16, 1990	non-impaired
4	11	AN0288	Hohokus Bk	Spring St	Ridgewood	Jul 17, 1990	moderately impaired
4	11	AN0289	Saddle R	Dunkerhook Rd	Fairlawn	Jul 17, 1990	moderately impaired
4	11	AN0290	Saddle R	Railroad Ave	Rochelle	Jul 17, 1990	moderately impaired
4	11	AN0291	Saddle R	Marcellus Pl	Garfield	Jul 17, 1990	severely impaired
4	18	AN0292	Third R	Kingland Ave	Nutley	Jul 6, 1993	moderately impaired